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North or Central America in pre-Columbian times, so far as we know. About a hundred years ago the English deported a large number of them from the island of St. Vincent to the island of Ruatan, in the bay of Hondnras. In the century which has since elapsed they have spread extensively over Central America, retaining largely their language and traits.

An interesting sketch of them is given by Dr. Carl Sapper, in the 'Internationales Archiv für Ethnographie,' Bd. X. The changes in their dialect by loss of forms and the introduction of new words from various European tongues are numerous, but its affinity to the Carib of the islands is unmistakable. Their arts also are South American.

The latter feature is further illustrated by an article from the pen of the editor of the *Archiv*, Dr. J. D. E. Schmeltz, on the utensils of the Caribs of Surinam, Dutch Guiana. It has an especial interest as tracing the development of the bird-motive in Caribbean art products. Several colored plates explain to the eye the descriptions in the text.

#### THE ANTHROPOZOIC FORMATION.

THE strata in geologic deposits which include the remains of man are called 'the anthropozoic formation.' To divide this accurately, with reference to sequence of time, on the one hand, and development of culture, on the other, is a leading task of the anthropologist. Professor Woldrich, of Prague, has proposed a scheme for the area of central Europe, which is published in the 'Centralblatt für Anthropologie,' 1897, Heft 2. It is useful as a general standard and it merits an epitomized reproduction here.

##### *The Anthropozoic Formation.*

#### I. The Diluvial Epoch.

##### A. Palæolithic period.

##### 1. Preglacial.

##### 2. Glacial and Interglacial.

##### 3. Post-glacial.

#### B. Mesolithic period.

#### II. The Alluvial Epoch.

#### C. Neolithic period.

##### 1. Old or atrymolithic (no bored stones).

##### 2. Middle or trymolithic (bored stones begin).

##### 3. Late, with the stones dressed to art shapes.

#### D. Metallic Period.

##### 1. Bronze age.

##### 2. Iron age.

##### 3. Protohistoric age.

##### 4. Historic age.

The author adds numerous examples of these several divisions from the layers of central Europe, and further specifications of their characteristics. He dismisses the 'hiatus' between the palæolithic and neolithic maintained by some archæologists, believing the development to have been gradual and uniform.

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#### NOTES ON INORGANIC CHEMISTRY.

THE statement is frequently found in the text-books that when platinum-silver alloys are treated with nitric acid a considerable quantity (5-9%) of platinum follows the silver into solution. In the Proceedings of the Chemical Society Mr. John Spiller gives the results of experiments on such alloys, containing from 0.25 to 12% platinum. In dilute nitric acid (1.2 sp. gr.) only about 0.25% of platinum was dissolved; with ordinary concentrated acid (1.42 sp. gr.) the maximum platinum dissolved was 1.25% and the average 1%. It thus appears that the ordinary statement is incorrect.

PROFESSOR RAMSAY recently read a paper before the Royal Society, detailing a series of experiments which show that helium

and argon do not pass through red-hot septa of platinum, palladium or iron. It is well known that hydrogen passes with great ease through such septa, either owing to solubility in the metal or the formation of easily decomposable compounds. Professor Ramsay's experiments imply the inability of helium or argon to form any even unstable compound with these metals or to dissolve in them at red-heat, another evidence of the inertness of these gases.

THE following from the *Chemical News* deserves to be quoted in full: "Atomic Models (Patent No. 1999, 1897). A patent has recently been granted to Mr. Frederick George Edwards, of London, by which the government affords protection to his idea that all atoms can be represented by varying numbers of tetrahedrons. The germ of the idea appears to be that as there are about seventy elements known to chemists, and that the tetrahedrons can be grouped together in as many as seventy different ways, the latter can illustrate the former. This is the idea; the practice, the inventor shows, is not so simple. For instance, he says: 'Regular tetrahedrons do not fit exactly, but each tetrahedron is so nearly regular that it may be supposed that each of the elements were (*sic*) created from regular tetrahedrons in a plastic condition.' This strikes us as a beautiful example of inventing facts to fit a theory. We are glad to find that Mr. Edwards has not patented atoms *per se*, but merely the form he thinks they take, together with a few names of elements, hitherto undiscovered, but predicted by him. These are: icosagon, atomic weight, 10; x-odine, atomic weight, 215; and zadmium, atomic weight, 245. It will be interesting to watch the action for infringement of patent which will result if any chemist engaged in research should have the temerity or the misfortune to discover either of these predicted elements. A lithographed diagram at the end gives the *shape*

of thirty-two elements, with atomic weights made to fit; we are sorry to have to record the fact that many of these atomic weights are wrong, but then so probably are the shapes."

THE *Chemisches Centralblatt* gives an abstract of a lecture by L. Wenghöffer, of Berlin, on the incandescent (Welsbach) gas-light. Among many points we note the following: Auer von Welsbach is not the original discoverer of the incandescent light, but deserves the credit of having brought the light to its present perfection and made it an industrial success. The oxids for the mantles must be chosen with great care, as well as their proportions, to attain the maximum brilliancy. The best results are reached with about 99% thoria and 1% ceria. The presence of any other of the rare earths does not improve the light, and a greater or lesser proportion of ceria is detrimental. 'Russium' nitrate, the use of which has been recommended in the place of cerium, proved in one case to be a mixture of thorium nitrate with much cerium nitrate, and in another case to be a mixture of cerium and ammonium nitrates. 'Lucium' oxid is impure yttria. The best source of thoria is monazite sand, and the price of thorium nitrate has fallen from \$500 per kilo at the opening of 1895 to \$5 or less at present. The cause of the low price is competition, and there is no probability that the supply will diminish. The source of the cerium is the by-product of the thorium manufacture, and the price of its nitrate is steady at about \$50 per kilo. The bath for saturating the mantle is a 30% aqueous solution of thorium and cerium nitrates in the proportion of 99 : 1.

FROM experiments on the action of ammonia on mercurous iodid, Maurice François, in the *Journal de pharmacie et chimie*, is led to the belief that the dark product formed by the action of ammonia on calomel is not a mercurio-ammonium compound, as has been

supposed, but a mixture of the colorless mercuri-ammonium compound with very finely divided metallic mercury.

N. TARUGI, who introduced the use of thioacetic acid as a substitute for hydrogen sulfid in the laboratory, has, in the *Gazzetta chimica italiana*, a study of the action of thioacetic acid on salts of bismuth. The thioacetate of bismuth is decomposed by a small amount of water with the formation of a thiobasic salt  $(\text{CH}_3\text{COS})_3\text{BiS}$ , and this on treatment with sulfuric acid gives a sulfate  $(\text{CH}_3\text{COS})_3\text{Bi SO}_4$ , and on treatment with iodine the corresponding iodid. These new compounds are of interest as being the first compounds of quintivalent bismuth in the marsh-gas series.

J. L. H.

#### SCIENTIFIC NOTES AND NEWS.

THE Senate has agreed to the provisions in the tariff bill admitting free of duty books in print more than twenty years, books in foreign languages and such as are devoted to scientific research, and books and scientific instruments imported for public and educational institutions.

PERHAPS the most noteworthy additions to the United States National Museum during recent years have been the rich collections of pre-historic pottery, made in the pueblo region, during the last two seasons, by Dr. J. Walter Fewkes, of the Bureau of American Ethnology. The success attending his operations in the past has led to a provision for continuing the work, and he has recently set out to the field for the third time. His design is to survey and excavate the ruins known among the Indians as Kintiel, near Navajo Springs, Arizona. He is accompanied by Dr. Walter Hough, of the United States National Museum.

THE keen appreciation of the importance of research on the part of Secretary Wilson has already given fresh impetus to various lines of scientific work in the Department of Agriculture. The more important operations are carried forward without change of personnel; it seems to be the policy to maintain and

strengthen the bureaus built up through the zeal and ability of well-known scientific men; and, at the same time, scientific character is given to certain of the lines of work hitherto regarded as administrative. One of the recent changes is the appointment of Mr. John Hyde as Statistician of the Department. Mr. Hyde became widely known through his connection with the Eleventh Census, and he has more recently been known in scientific circles as editor of the *National Geographic Magazine* and as a writer on political economy.

MAJOR J. W. POWELL is on the coast of Maine, engaged in researches concerning shell mounds, in the interest of the Bureau of American Ethnology.

PROFESSOR SOUILLARD, astronomer at Lille, has been elected a corresponding member of the Paris Academy of Sciences.

DUBLIN University has conferred the degree of D. Sc., on Professor William Ramsay, Major P. A. M'Mahon, D.D., and Professor Wilhelm His, of Leipzig.

DR. RUDOLPH LEUCKART and Dr. Karl Neumann have been made Knights of the Prussian Order of Merit in Science and Art.

THE Royal College of Surgeons of England has conferred the John Tomes prize on Mr. C. F. Tomes, F. R. S.

THE *Naturwissenschaftliche Rundschau* states that, at a recent meeting of the Academy of Sciences of Vienna, Ritter v. Arneth was reelected President; Dr. Suess, Vice-President; Professor Huber, General Secretary, and Dr. Hann, Secretary of the Mathematico-Physical Section. Dr. Gautsch v. Frankenthurm and Dr. Exner, of Innsbruck, were elected corresponding members; Lord Lister, honorary foreign member; and Dr. Vogel, of Potsdam; Herr Karpinsky, Director of the Geological Institute of St. Petersburg; Dr. Gegenbauer, of Heidelberg, and Herr Brioschi, of Milan, corresponding members.

M. LE GÉNÉRAL DE TILLO announced at a recent meeting of the Paris Academy of Sciences that the sum of 25,000 francs had been subscribed in Russia to the Lavoisier monument fund.